

### Abstract

A fuel cell, fuel cell array and methods of forming the same are disclosed. The fuel cell can be made by forming a first aperture defined by a first aperture surface through a first electrode layer and forming a second aperture defined by a second aperture surface through a second electrode layer. A proton exchange membrane is laminated between the first electrode layer and the second electrode layer. At least a portion of the first aperture is at least partially aligned with the second aperture.